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**PROGRAM RESEARCH AND DEVELOPMENT ANNOUNCEMENT  
PRDA 04-01-PKT**

**INTEGRATED HIGH PAYOFF ROCKET PROPULSION TECHNOLOGY XI  
(IHPRPT)**

**DATED: 13 FEB 04**

Technical POC: Frank Gulczinski  
Contract Specialist: Melissa Petter  
Contracting Officer: Teresa Weber

**Distribution Statement A – Approved for public release; distribution is unlimited.**

PROGRAM RESEARCH AND DEVELOPMENT ANNOUNCEMENT  
NUMBER PRDA 04-01-PKT

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**PREFACE:**

1. **Program Research and Development Announcement (PRDA) Title:** Integrated High Payoff Rocket Propulsion Technology XI
2. **Technical Points Of Contact (POCs):** Frank Gulczinski, e-mail: [frank.gulczinski@edwards.af.mil](mailto:frank.gulczinski@edwards.af.mil), phone: 661-275-6796; or, Ronald Spores, e-mail: [ronald.spores@edwards.af.mil](mailto:ronald.spores@edwards.af.mil), phone: 661-275-5528; mail address: AFRL/PRSS, 1 Ara Road, Edwards AFB, CA 93524-7013
3. **Contracting POCs:** Melissa Petter (Contract Specialist), e-mail: [melissa.petter@edwards.af.mil](mailto:melissa.petter@edwards.af.mil), phone: 661-277-8596; or, Teresa Weber (Contracting Officer), e-mail: [teresa.weber@edwards.af.mil](mailto:teresa.weber@edwards.af.mil), phone: 661-277-3344; mail address: AFFTC/PKT, 5 South Wolfe Avenue, Edwards AFB, CA 93524-1185
4. **Proposal Due Date and Time:** Proposals shall be submitted by 4:00 P.M. PST 45 days after release of the Final PRDA.
5. Proposals shall be submitted in accordance with the instructions included in this announcement. (Removed: "offerors must mark their proposals with the restrictive language stated in FAR 15.609(a).")
6. **The original proposal package and two (2) copies shall be submitted to the Contract Specialist. Submit eight (8) copies to the Technical POC.** Each proposal package shall include a technical/management proposal, and a business/price proposal. Each proposal package shall be prepared according to the instructions in Section C. Also submit the oral presentation on CD-ROM with the slides in PowerPoint-2002 format. Timeliness of submission will only be

monitored by the Contract Specialist. The Contract Specialist will ensure that all proposals received are evaluated. Failure to comply with this request may jeopardize the evaluation schedule. NOTE: Proposal received after the due date and time shall be governed by the provisions of FAR 52.215-1(c)(3).

7. Questions may be directed to the Technical POC or Contracting POC until the proposal due date. Following the proposal due date, questions shall be addressed to the Contracting POC only.

## INTRODUCTION:

1. The Air Force Research Laboratory, Propulsion Directorate, AFRL/PR-West, Edwards AFB, CA is soliciting unclassified technical and price proposals for the effort described in Section A below. This announcement provides a complete description of the topic, the government projected funding profile and the technology areas to which the topic belongs. Proposals should be addressed to the Contracting POC and Technical POC stated in the Preface with the appropriate markings. This is an unrestricted solicitation. The North American Industry Classification (NAICS) applicable to this acquisition is 541710 with 1000 employees as the threshold between small business and large business classification. Small businesses are encouraged to propose on this solicitation. Proposals shall be submitted in accordance with this announcement. **There will be no other solicitation issued in regard to this requirement.** Offerors should be alert for any PRDA amendments that may permit extensions to the proposal submission date.

2. Although not mandatory, it is recommended that a prospective offeror have either a government coordinated Advanced Rocket Propulsion Plan (ARPP), or develop an ARPP prior to or in conjunction with the proposal submittal or have a documented working relationship with a company possessing a government coordinated ARPP to ensure IHPRPT relevance of any proposed technology. Information about the IHPRPT program in general and the ARPP process is available from the Technical POC stated in the Preface.

3. **Foreign Participation & Disclosure Restrictions:** This acquisition involves technology that has a military or space application. The foreign disclosure office has determined that limitation of foreign participation is appropriate. Foreign owned or influenced firms; foreign governments or foreign nationals are prohibited from participation as a prime or sub-contractor in the development and testing of IHPRPT spacecraft propulsion technologies. In addition, the Export - Controlled Data Restrictions clause AFMC FAR 5352.227-9000 and Visit Request by Foreign-Owned or Controlled Firms clause AFMC FAR 5352-227-9002, shall be included in any contract or agreement.

4. **Access to Restricted Technical Information:** Any required restricted technical information is available to qualified offerors and will be provided upon request from the Technical POC. Only U.S. Contractors who are registered and certified with the Defense Logistics Services Center (DLSC), Federal Center, Battle Creek, MI 49017-3084 (1-800-352-3572) and have a legitimate business purpose may have access to this information. If you are registered with the DLSC, you must submit a copy of the approved DD Form 2345, Military Critical Technical Data Agreement, with your request for the data.

5. **Central Contractor Registration:** To be eligible for award an offeror must be registered in the Central Contractor Registration (CCR) database pursuant to Federal Acquisition Regulation (FAR) Subpart 4.1102. Federal guidance and registration information is available at <http://www.ccr.gov>.

6. **Wide Area Work Flow (WAWF):** Contractors shall submit payment request in electronic format in accordance with Defense Federal Acquisition Regulation Supplement (DFARS)

252.232-7003. Information regarding Wide Area WorkFlow-Receipt and Acceptance (WAWF-RA) is available at <https://wawf.eb.mil>. Information regarding the Web Invoicing System (WinS) is available at <https://ecweb.dfas.mil>.

7. Responses to this announcement are sought to develop an advanced technology base for rocket propulsion concepts and components aimed at supporting the IHPRPT program. The IHPRPT program is the DoD/NASA/Industry coordinated effort to develop revolutionary and innovative technologies by the year 2010 that will permit a doubling of rocket propulsion capabilities over 1993 state-of-the-art technology. Capability infers the full spectrum of technological needs, such as performance, affordability, operability, reliability, and maintainability. The IHPRPT program is structured in three phases to achieve pre-determined measurable increases in all rocket technology capabilities. Phases I, II, and III specify technology demonstrations for each phase by the years 2000, 2005 and 2010 respectively. The IHPRPT program is organized along three mission application areas: Boost/Orbit Transfer Propulsion, Spacecraft Propulsion, and Tactical Propulsion. Within each of the mission application areas, five technology areas specify the particular technologies being advanced to meet the goals of IHPRPT. These technology areas are: Propellants, Propellant Management Devices, Combustion and Energy Conversion Devices, Control Systems and Demonstrators. The sixth area, Strategic Sustainment Technology, exists under the boost/orbit transfer propulsion and the tactical mission application areas only.

8. Proposals are being solicited in the Spacecraft Propulsion mission area for the **High Power Propulsion System for Future Air Force Space Assets** effort in the following technology area: Combustion and Energy Conversion Devices. This effort will achieve the Phase III goal.

## **SECTION A. STATEMENT OF PROBLEM/OBJECTIVE:**

### **1. Topic Description:**

#### **a. Introduction**

(1) High power xenon Hall effect thruster electric propulsion systems are of interest to the Government, as they would provide timely, fuel efficient orbit transfers and other in-space maneuvering capabilities for future Department of Defense (DoD) space assets. To perform these maneuvers in a time frame that is compatible with the needs of DoD space user, these systems must be capable of high thrust operation relative to state-of-the-art electric propulsion systems and will require power levels that are higher than those for state of the art electric propulsion systems. In order to facilitate this high thrust operation while maintaining the benefits of high specific impulse operation, these electric propulsion systems should be capable of both demonstrating the IHPRPT Phase III goal for Electrostatic Spacecraft Propulsion thrusters at one or more operating conditions and operating at high thrust-to-power (T/P) ratios.

#### **b. Requirements**

(1) The Government is interested in developing a complete xenon Hall effect thruster electric propulsion system to meet this spacecraft maneuvering need, with an ultimate objective of transitioning the system to an operational spacecraft to support the needs of the warfighter. This electric propulsion system should be complete and stand-alone, consisting of at least a thruster and cathode, the necessary power processing unit, and a propellant management system (exclusive of a propellant tank).

(2) This system shall be capable of demonstrating the IHPRPT Phase III goal for Electrostatic Spacecraft Propulsion thrusters at one or more operating conditions. This goal is to demonstrate an improvement of 70% over the IHPRPT baseline in the ratio of total impulse per unit wet mass. For the purposes of this effort, the wet mass shall be defined as the sum of the following masses: sufficient propellant mass to demonstrate the Phase III goal, thruster and cathode mass, power processing unit mass, and the estimated mass of a propellant tank capable of containing the required propellant. There are IHPRPT objectives for specific impulse, system power efficiency, specific mass of the thruster and PPU, and lifetime which provide guidance on how the IHPRPT goal may be achieved. Further information on IHPRPT goals is ITAR restricted and is contained in the supplemental package to this PRDA.

(3) In addition to demonstrating an IHPRPT Phase III goal at one or more operating conditions, the system shall demonstrate performance values for the following parameters:

- (a) Specific impulse
- (b) Thrust-to-Power ratio
- (c) Thruster discharge power
- (d) Thrust

The requirements for these parameters are ITAR restricted and are contained in the supplemental package to this PRDA.

(4) This propulsion system shall be designed and documented to Class B spacecraft equipment standards in accordance with DOD-HDBK-343. Single string topologies are acceptable.

(5) The thruster must be a single unit, not a cluster of smaller units operating together. It should, however, be capable of being clustered with other identical thrusters in order to create a system with thrust and power capabilities beyond the scope of this effort. For this effort, the capability of being clustered means operating with no loss in performance or lifetime when the minimum separation between any two adjacent thrusters in a cluster is less than or equal to 10% of the largest characteristic dimension which is parallel to the exit plane of a single thruster. This capability shall be demonstrated via analysis and/or modeling – though models should not be developed specifically for the purpose of demonstrating this capability – and not by testing.

(6) The power processing unit (PPU) design shall be based on a contractor's analysis of future trends in high power solar electric spacecraft bus voltages, though a unit that is adaptable to multiple bus voltages would also be of interest to the Government. The power processing unit should contain its own on-board computer and use a standard digital interface (e.g., RS-422 or MIL-STD-1553).

(7) Improvements to the state-of-the-art for xenon propellant management systems (excluding propellant tanks) are encouraged. Areas of interest include, but are not limited to, reliability and mass.

(8) The propulsion system should be designed to minimize spacecraft interaction issues that would impede the process of spacecraft integration.

c. Program Structure

(1) Each offeror should approach this solicitation by assessing their capabilities, identifying their limitations, and proposing an electric propulsion system specific to their unique situation. The desire is to increase the offeror's capability in design, development, test, and production of spacecraft propulsion systems.

(2) A single award is anticipated from this solicitation. Efforts are being solicited as a basic contract with several contract options. The exercise of the options is envisioned to



be associated with key milestones. Management tasks should be planned for the basic effort and within each option.

### (3) Basic Effort

(a) The basic effort should include as a minimum: 1) the design of a xenon Hall-effect thruster system capable of meeting the requirements described above (this can, if necessary, include modeling and simulation tool development), 2) analysis, modeling, and subscale testing to validate that this design will be capable of meeting the requirements, 3) an Initial Design Review, 4) build and delivery of a full-scale laboratory model propulsion system for test and evaluation in conjunction with the Government, and 5) the final report. This effort will culminate in a Preliminary Design Review.

(b) For the purposes of this effort, a laboratory model propulsion system shall be defined as one having the performance characteristics, but not the mass or volume characteristics, of the offeror's envisioned commercializable flight system. This corresponds approximately to a NASA Technology Readiness Level of 4. Only the laboratory model thruster (not the power processing unit or propellant management system) shall be designed for and tested under vacuum conditions.

### (4) Engineering Model Hardware Options

(a) Engineering model development efforts should be planned and priced as three separate optional tasks – one each for the thruster/cathode, power processing unit, and propellant management system. These optional tasks should include as a minimum: 1) design, build, and delivery of engineering model propulsion subsystems capable of meeting the requirements described above for test and evaluation in conjunction with the Government and 2) the final report. The decision gate to determine whether the engineering model options will be exercised is envisioned to occur at or before the Preliminary Design Review. The engineering model development efforts will culminate in Critical Design Reviews. The Government may exercise these options at any point based on the clarity, quality, perceived value to the offeror and the Government, and programmatic (cost, schedule and reporting) performance to date.

(b) For the purposes of this effort, an engineering model propulsion system shall be defined as one in which all components have the form, fit, and function of the offeror's envisioned commercializable flight system. However, in the interest of cost and schedule savings, not all parts need to be flight qualifiable (but must have the form, fit and function of parts that would be flight qualifiable). This corresponds approximately to a NASA Technology Readiness Level of 6. All components of the engineering model shall be designed for operation under vacuum conditions.

(5) Additional contractor proposed options will be considered but must not include any requirements as specified by the Government in this PRDA. Contractor proposed options should be priced from \$50K to \$250K, but higher value options may also be considered.

d. Testing

(1) Testing should be performed in the most cost effective manner. Government vacuum test facilities are available for thruster firing tests and, if they are desired, they will be provided as Government furnished equipment by AFRL/PRSS. Government furnished propellant for thruster firing tests is available and, if it is desired, it will be provided as Government furnished equipment by AFRL/PRSS. All costs not specified here shall be the responsibility of the offeror. The capabilities of facilities at the Air Force Research Laboratory Propulsion Directorate can be found in Attachment 5. The capabilities of facilities at the NASA Glenn Research Center can be found at <http://facilities.grc.nasa.gov/epl/index.html> and <http://facilities.grc.nasa.gov/eprb/index.html>. new

(2) Test and evaluation of the laboratory model propulsion system performed in conjunction with the government shall include integrated system testing. Test and evaluation of the engineering model propulsion system performed in conjunction with the government shall include integrated system testing. Those subsystems of the engineering model system that are not developed due to non-exercise of options shall be replaced by the corresponding laboratory model subsystem. new

(3) As it is expected that the cost of a full lifetest of this high power electric propulsion system would be high, offerors are encouraged to propose alternative methods for determining the operational lifetime of their systems. The thruster should be tested for sufficient duration to validate these methods with 90% confidence.

e. Display models

(1) Offerors shall provide two (2) display models of their final (engineering model or laboratory model, depending on option exercise) Hall thruster/cathode subsystem. Display models of the remaining subsystems shall not be provided. new

2. **Program Period of Performance:**

a. The period of performance for the basic High Power Propulsion System development effort is expected to begin in 4Q FY04 and end at the Preliminary Design Review. The periods of performance for the three engineering model hardware options are expected to begin near or at the end of the basic effort and end at Critical Design Reviews. A three (3) month reporting period will continue upon completion of the technical efforts associated with the basic effort and any options exercised.

### 3. Contract Funding Profile:

a. The planned funding profile for this effort is shown below. This profile shows total dollars expected to be on contract. It does not include funds for Government furnished test facilities and propellant.

| Fiscal Year -- (\$M) | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Total |
|----------------------|------|------|------|------|------|------|-------|
| Total                | 0.76 | 1.04 | 1.94 | 1.99 | 1.41 | 0.92 | 8.06  |

**Planned Funding Profile**

### 4. Additional Guidance

a. Offerors shall include annual participation in the Joint Army Navy NASA Air Force (JANNAF) conferences in order to present current results. Participation in the JANNAF conferences will serve as a mechanism to report progress to the community.

b. Offerors shall include weekly telephone conferences with the Government and structure their work into Integrated Product Teams (IPT) in which the Government will be an active participant. In addition, Technical Interchange Meetings (TIM) and Quarterly Program Reviews (QPR) are anticipated. Location should alternate between the offeror's facility and AFRL/PR-West.

c. All offerors should propose to the entire topic description, basic and options.

d. Deliverables:

(1) Data Requirements. All contracts awarded as a result of PRDA 04-01-PKT shall be required to include appropriate data items. Following is a sample of a Contract Data Requirements List (CDRL). The items below or other similar items shall be incorporated as applicable. The Data Item Descriptions are given as references only. All reports are to be divided into sections marked as proprietary and non-proprietary information, if applicable. Offerors are encouraged to propose alternates to the standard items shown below for approval. In addition, contractor's format and report consolidation are highly encouraged and will be acceptable upon approval. Alternate or additional data items that would streamline and/or enhance the effectiveness of the effort are solicited. Proposals must show a list of CDRL items included in the price of the proposal. Electronic submission of data items is required. See the model contract, Exhibits A and B for complete requirements.

| Description                                  | Data Item Description | Frequency |
|--|-----------------------|-----------|
| Technical and Management Work Plan           | DI-MGMT-81117         | As Req.   |
| Contract Work Breakdown Structure (CWBS)     | DI-MGMT-81334A        | As Req.   |
| Contractors Progress, Status & Mgmt Report   | DI-MGMT-80227         | Quarterly |
| Contract Funds Status Report (CFSR)          | DI-MGMT-81468         | Quarterly |
| Presentation Material                        | DI-ADMN-81373         | As Req.   |
| System/Subsystem Specification (SSS)         | DI-IPSC-81431A        | 1/R       |
| Conceptual Design Drawings                   | DI-SESS-81001B        | 1/R       |
| Test Plan                                    | DI-NDTI-80566         | As Req.   |
| Test Procedure                               | DI-NDTI-80603         | As Req.   |
| Still Photography                            | DI-MISC-80169         | As Req.   |
| Software User Manual (SUM)                   | DI-IPSC-81443A        | 1/R       |
| Scientific & Technical Report - Final Report | DI-MISC-80711A        | 1/R       |

**Sample Contract Data Requirements List**

(2) Software. All software developed under this solicitation shall be delivered as an executable, and as commented source code in a language agreed upon by the offeror and the Government. Appropriate data rights will be applied in accordance with DFARS Subpart 227.72.

(3) Laboratory Model. The laboratory model propulsion system produced as a result of PRDA 04-01-PKT shall be delivered for validation prior to the Preliminary Design Review.

(4) Engineering Model. The engineering model propulsion subsystems produced as a result of PRDA 04-01-PKT shall be delivered for validation prior to the Critical Design Review.

(5) Display Models. All display models produced as a result of PRDA 04-01-PKT shall be delivered upon contract completion.

(6) Residual Hardware. All residual hardware produced or procured as a result of PRDA 04-01-PKT shall be delivered upon contract completion.

e. Distribution of Information: All technical data generated or delivered under any contract resulting from this PRDA is controlled by the International Traffic in Arms Regulation (ITAR), 22 CFR Sections 121 through 128, and will require the following distribution statement. "Distribution Statement C – Distribution authorized to US Government agencies and their contractors (Critical Technology) (Contract Award Date). Other requests for this document shall be referred to AFRL/PRS, 5 Pollux Drive, Edwards AFB, CA 93524-7048."

## **SECTION B: AWARD INFORMATION:**

### **1. Expected Award Date:**

| Activity                 | Date                        |
|--------------------------|-----------------------------|
| Announcement             | Feb 04                      |
| Pre-Proposal Conference  | Feb 04                      |
| Proposals Due            | 45 Days after Announcement  |
| Oral Presentations Begin | ~7 Days after Proposals Due |
| Expected Award           | 4Q FY04                     |

**2. Total Funding:** \$8.06M is planned for total award from this PRDA.

**3. Contract Type:** Anticipated type of contracts to be awarded is Cost Plus Fixed Fee. **Note that IR&D funds cannot be used on this type of contract.** Other award instruments such as cost share contracts or assistance agreements will be considered if proposed and substantiated.

## **SECTION C: PROPOSAL PREPARATION INSTRUCTIONS**

### **1. General Instructions:**

**NOTE: All offerors must comply with all provisions of FAR 52.215-1 (Jan 2004)**

**"Instructions to Offerors - - Competitive Acquisitions." A copy of this provision may be obtained from <http://farsite.hill.af.mil>.**

a. Offerors must state that their proposals will be valid for 180 days from submission. The Government reserves the right to select for award contracts up to one year from issuance of this announcement. The cost of preparing proposals in response to this announcement is not an allowable direct charge to any resulting contract or any other contract, but it may be an allowable expense to normal bid and proposal indirect cost specified in FAR 31.205-18.

b. All offerors participating in this PRDA will be required to prepare and submit a proposal. A proposal consists of two (2) parts: the Technical/Management Proposal consisting of written technical/management information and oral presentation material, and the Business/Price Proposal which will include the Section B Schedule of Contract Line Item Numbers (CLINs), representations and certifications, a signed offer sheet, any exceptions to the Government's terms and conditions, and price information. The technical/management written information, oral presentation material, and business/price volume submitted by an offeror are the only vehicles available to the offeror for receiving consideration for award. The proposal must stand on its own merit; only information provided through the proposal can be used in the evaluation process leading to an award. The proposal should be prepared simply and economically, providing straightforward, concise delineation of capabilities necessary to perform the work proposed. The requested business/price volume must accompany the technical/management information, because business/price and technical/management considerations are reviewed simultaneously. Offerors should consider proposal instructions contained in AFRL's BAA/PRDA Industry Guide, dated May 2001. This guide was specifically designed to assist offerors in understanding the BAA/PRDA proposal process. Copies may be obtained at <http://www.wrs.afrl.af.mil/contract/hp.htm>.

c. Proposals containing data that is not to be disclosed to the public for any purpose or used by the government except for evaluation purposes shall include the following statement on their title pages. "The proposal includes data that shall not be disclosed outside the government and shall not be duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate this proposal. If however, a contract is awarded to this offeror because of, or in connection with, the submission of these data, the government shall have the right to duplicate, use or disclose these data to the extent provided in the resulting contract. This restriction does not limit the government's right to use the information contained in these data if they are obtained from another source without restriction. The data subject to this restriction are contained on sheets (insert page numbers or otherwise identify the sheets)." Each restricted data sheet should be marked as follows. "Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal." This statement may be in a small font and should only be at the bottom of each applicable page.

d. Responses to this announcement should be unclassified. **Electronic submissions of proposals are not authorized.** Copies of each proposal shall be submitted as instructed in the introduction to this announcement. The oral technical proposal is solicited in lieu of a written technical proposal and is mandatory.

## 2. Technical/Management Proposal Instructions:

a. Instructions for Written Portion of the Technical/Management Proposal. The written technical/ management portion of the proposal consists of several items. The offeror is required to submit a written unclassified Statement of Work (SOW), a written description of any proposed alternatives to the data items listed in Section A of this announcement, a program schedule including decision gates and milestones, resumes of key personnel, past/present performance data. The cover page should also contain the proprietary data disclosure statement, if applicable. To ensure all technical submittals/presentations receive proper consideration, the following instructions should be followed as closely as possible.

(1) Unclassified Statement of Work. Attachment 1 to this announcement contains instructions for writing a Statement of Work (SOW). Offerors are cautioned to include only that information which is essential to a clear, concise, and binding SOW. This document will be made part of any resulting contract. Information extraneous to a clear, concise SOW will be removed prior to award. The SOW shall not exceed 15 pages. (A page is one side of a sheet of paper.) Offerors are also cautioned to not include proprietary information in the SOW, as the SOW will not be marked as such. Offerors may request copies of our contracts under the Freedom of Information Act; consequently, it is imperative that no company-sensitive information be included in the SOW.

(2) Program Schedule. The schedule represents the offeror's commitment to perform the program tasks in a thought out, logical, and timely manner. Each major task identified in the SOW should appear as a separate line on the program schedule, including milestones and decision gates. All decision points, planned meetings, such as kick-off, presentations (including final), Technical Interchange Meetings, Design Reviews etc., must be included in the schedule. The schedule should also indicate the anticipated meeting site.

(3) Labor Mix Schedule by WBS. Submit a summary table of person loading by WBS/Major Task, Subtask (level 3) and by labor category or skill mix in the format shown below. These hourly requirements are to include (but separately identify) subcontractors and inter-divisional transfer(s) hours. Do not reflect dollar amounts in this schedule. All hours shown in this submittal must agree with those reflected in the cost summary required in Attachment 3, Guidelines for Information Other Than Cost or Pricing Data, paragraph 1. **A separate labor mix schedule by WBS must be provided for each proposed option.**



| WBS/MAJOR TASK                           | CFY 03 | CFY 04 | ETC | TOTAL |
|--|--------|--------|-----|-------|
| WBS 1.0 (Title)                          |        |        |     |       |
| Engineering A – Prime                    | 50     | 100    | 0   | 150   |
| Engineering A – Interdivisional Transfer | 50     | 0      | 100 | 150   |
| Engineering B                            | 50     | 50     | 0   | 100   |
| Manufacturing A                          | 0      | 200    | 0   | 200   |
| Etc.                                     |        |        |     |       |
| WBS 1.1 (Title)                          |        |        |     |       |
| Engineering B                            | 150    | 250    | 10  | 410   |
| Manufacturing A                          | 0      | 200    | 0   | 200   |
| WBS 1.1.1 (Title)                        |        |        |     |       |
| Engineering B                            |        |        |     |       |
| Manufacturing A                          |        |        |     |       |
| Etc.                                     |        |        |     |       |
| WBS 1.2 (Title)                          |        |        |     |       |
| WBS 1.2.1 (Title)                        |        |        |     |       |
| Etc.                                     |        |        |     |       |
| Subtotal Engineering A                   | 100    | 100    | 100 | 300   |
| Subtotal Engineering B                   | 200    | 300    | 10  | 510   |
| Total Engineering                        | 300    | 400    | 110 | 810   |
| Manufacturing A                          | 0      | 400    | 0   | 400   |
| Total Manufacturing                      | 0      | 400    | 0   | 400   |
| ETC                                      |        |        |     |       |
| Total Direct Labor Hours                 | 300    | 800    | 110 | 1210  |

**Sample Labor Mix Schedule (Hours)**

(4) Basis of Estimate (BOE). Offerors shall submit a BOE supporting the proposed hours, materiel, and other direct costs by WBS/Major Task, Subtask (level 3). The BOE shall convey a clear understanding of how the labor and materials were estimated for each task in the SOW. The BOE for labor shall include sufficient detail to identify what work is being performed and why the offeror believes the proposed person-loading is sufficient, of the proper labor mix and reasonable for each task of the SOW. Where applicable, historical data for similar tasks shall be identified along with any judgmental factors that were applied. The applicability of the historical data shall be explained, and all factors shall be defined and justified. Do not reflect dollar amounts in the BOE.

(5) Data Items. A sample Contract Data Requirements List (CDRL) is discussed in Section A of this announcement. Offerors are encouraged to propose alternate data items that are standard in-house reports. Other data items that will streamline and/or enhance the effectiveness of the program may also be proposed. If an alternate or other data item is proposed, a description of the item, including how it is generated and the frequency, is required. This description for an alternate data item must show that the alternate will meet the documentation requirements of the listed CDRL. A sample document may be included. Proposals must show a list of CDRL items that were priced in the offeror's proposal.

(6) Resumes. Include the resumes for key personnel to be involved in this effort for the prime contractor, subcontractor, and consultant personnel. This information shall not exceed fourteen (14) pages.



(7) Past/Present Performance Data. Each proposal must include information on each contract that the offeror considers relevant in demonstrating the ability to perform the proposed effort. This information should cover work performed by other divisions, critical subcontractors, or teaming contractors **only if** such resources will be brought to bear on or significantly influence the performance of the proposed effort. The following information should be received for each relevant contract. **This information shall not exceed ten (10) pages.** More in-depth discussion of this experience may be included in the oral presentation.

(a) Company/Division Name

(b) Program Title

(c) Contracting Agency

(d) Contract Number

(e) A brief description of the contract effort, indicating whether it was basic research, development, or production; briefly describe the relevance to the proposed effort; and address major risks and challenges associated with the cited effort.

(f) Type of Contract

(g) Period of Performance

(h) Original contract Dollar Value and Final (Current) Contract Dollar value, indicate any over-run or under-run

(i) Original Completion Date and Final (or Current) Completion Date; indicate whether or not it was or is on schedule

(j) Name, address and valid telephone number of current (or last, if contract has been completed) Government program director/manager, ACO and PCO

(k) Subcontractor Company Name(s) and applicable experience associated with relevant contracts

b. Instructions for Oral Presentation Portion of the Technical/Management Proposal:

(1) General Information. Every offeror who submits a proposal must make an oral presentation and participate in a Q&A session conducted by representatives of the Government. The purpose of the oral presentation is to assess the offeror's understanding of the problem, the soundness of their technical approach, the strength of their business plan, and the soundness of their project management approach. The content of the oral presentations will not become a part of any resulting contract. However, a video

recording of the session will be made part of the official proposal file. **Offerors will be allowed five workdays to submit any updates to their written submissions (except briefing charts) resulting from their oral presentation and Q&A session.**

(2) Oral Presentation Ground Rules. The offeror shall identify the authors/briefers of the presentation by name and association with the offeror. (Briefings will be conducted by the offerors' technical experts rather than outside "professional actors".) Each offeror will be given up to fifteen minutes to introduce the key project personnel and discuss corporate commitment to the IHRPT program. This will be followed by an oral presentation that may not exceed 180 minutes in length. Each offeror is encouraged to structure their presentation so that a 10 minute break can occur every 60 minutes. The 10 minute breaks will not be considered part of the 180 minute time limit. Upon completion of the presentation, the Government will caucus to formulate any questions regarding the presentation and written submittals. Once the clarification questions have been formulated the offeror will be allowed thirty (30) minutes to look them over and develop a strategy for addressing them. **Clarification questions concerning the written price volume may be asked.** Offerors should ensure the appropriate personnel are present to field all questions. The Question and Answer (Q&A) session will be approximately two (2) hours. **It is the Government's intent that the offeror resolve all questions during the Q&A session.**

(3) Oral Presentation Scheduling. If you plan to submit a proposal under this PRDA, please contact the Contract Specialist, no later than fourteen (14) days prior to the submission date of the proposal. The Contracting Officer will randomly schedule oral presentations and Q&A sessions by assigning dates, places, and times and notifying each offeror of his/her assignment approximately fourteen (14) days prior to his/her scheduled oral presentation date. The first presentation may take place as soon as three days after the receipt of proposals. The Contracting Officer will notify offerors of the exact location. The Government reserves the right to reschedule any offeror's oral presentation and Q&A session at its sole discretion.

(4) Recording of Oral Presentation. The government will use a support contractor to video tape the oral presentation and the associated Q&A session as a historical record. The tape(s) will be turned over to the Contracting Officer upon completion of the Q&A session to be made part of the official proposal file. A copy will be provided to the offeror if desired. The video record of the sessions will be in standard VHS format for viewing in a standard VHS VCR/TV setup.

(5) Oral Presentation Content: The oral presentation is the heart of the offeror's technical proposal. It addresses what is normally contained in a written technical proposal. See Attachment 2 for a list of possible topics to discuss during the presentation.

(6) The oral presentation portion of the technical/management proposal requires the submission of a presentation package of briefing charts. The cover page should contain the proprietary data disclosure statement, if applicable. To ensure all oral presentations receive proper consideration, the following instructions should be followed as closely as

possible. To ensure offerors do not spend an inordinate amount of time and money in preparing presentation briefing charts (i.e. special color briefing charts) the following presentation limitations have been developed:

(a) Presentation media generated for this acquisition are to be limited to black and white viewgraphs or PowerPoint presentations.

(b) Color slides are acceptable only for graphics briefing charts if the color provides clarity of the graphic figure.

(c) The offeror shall not include narrative discussions (i.e. notes pages) with the briefing charts.

(d) Briefing charts may be formatted at the offeror's discretion. Offerors are advised that legibility of data from the middle of a large conference room will be required. A presentation that is difficult to read/understand may have an adverse affect on the offeror's rating.

(e) Other Information. Briefing charts should be sequentially numbered in the lower right corner. The Government will provide blank transparencies for the presenters to use during the Q&A session, which follows the oral presentations.

(f) Number of Briefing Charts. There is no limit to the number of briefing charts that can be presented during the oral presentation. However, only those briefing charts presented will be considered for evaluation. Any additional briefing charts submitted over and above those presented will not be evaluated.

(g) Oral Presentation Submission. Each offeror must submit its PowerPoint-2002 presentation on CD-ROM with paper copies as described in the introduction to this announcement. Additional copies for offeror's team may also be submitted in a clearly marked sealed package attached to the proposal, and submitted to the Technical POC. Offerors will not be allowed to change their briefing chart package after submittal. The CD-ROM along with the additional copies will be provided to the offeror during the scheduled Oral Briefing.

(h) Presentation Equipment. The Government will furnish the necessary computer/projector and/or overhead projector for the oral presentations. The offeror's equipment may not be used.

c. Additional Information. Provide the following information, as applicable, when developing technical presentations and Statement of Work.

(1) If proposing Government Furnished Property (GFP), identify the source and location of the property, who owns it (include point of contact with phone number), approval from the property owner and how, when and for how long it will be made available under the proposed effort.

(2) Address commonality with other programs. If contributions from other efforts are proposed, identify the specific efforts, the planned start and end dates, and the applicability to the current PRDA and IHPRT. In addition, ensure all efforts are included on the proposed program schedule.

d. Page Restrictions. The requested written proposal information both technical/management and business/price (specific instructions below) shall have the following characteristics:

(1) All narrative text must be **double-spaced**. Figures, schematics, drawings, diagrams and tables may be single-spaced.

(2) Each page may have information on both sides. (Double sided permitted)

(3) Narrative text must be no smaller than 12 point font size except for the reproduced sections of the model contract. Figures, schematics, drawings, diagrams and tables may be in a smaller font, but shall be no smaller than 8 point font size.

(4) Each page should have no less than 1 inch margins all around.

(5) Page limitations shall be treated as maximums. If exceeded, the excess pages will not be read or considered in the evaluation of the proposal and will be returned to the offeror as soon as practical.

e. Volumes and Binding. The required written documents of a technical nature (except the presentation briefing charts) may be assembled as a single volume with the business/pricing data information. The presentation briefing charts shall be prepared and submitted as described above. The outside front cover of each volume shall indicate the offeror's name and address, the PRDA title and reference number, technology area and project/topic title, the date of the submittal, the title of the volume, the copy number and an indication of any contents that are proprietary.

### 3. Business/Price Proposal Instructions:

#### a. Price Information:

(1) Every offeror will be required to submit price information. **It is anticipated that adequate price competition will be achieved on this PRDA.** Your submission must be in accordance with Attachment 3 to this announcement, "Guidelines for Information Other than Cost or Pricing Data". All options must be priced separately. (See Section A of the PRDA for more option information.)

(2) **The government reserves the right to request complete cost or pricing data in the event that adequate price competition is not achieved.** If your proposal is over \$550,000 you will be requested to provide complete cost or pricing data. You will be

allowed 30 days within which you must respond. Attachment 4 to this announcement, "Guidelines for Cost or Pricing Data," contains additional information regarding submission of cost or pricing data.

b. Government Furnished Facilities and Propellant: If an offeror proposes to use Government Furnished Facilities and/or propellant, the estimated cost of this government support shall be listed separately in the cost proposal. **NOTE:** Government support costs are not contract costs included in the contract funding profile shown in Section A Paragraph 3 of this PRDA. new

c. Cost Share Documentation: If an offeror proposes to share the cost of the contract, sufficient documentation should be included to ensure the government that the proposed share does not include IR&D funds or any other funding/assets not allowed under the FAR. If the offeror proposes an assistance instrument, documentation should be included that identifies the type of cost share.

d. Exceptions: Normally, there are no exceptions taken to the requirements called out in this announcement. If the contractor does anticipate any differences (e.g., base support, government furnished property, CDRLs, etc.), these should be clearly stated and priced in the business/price volume.

e. Subcontracting Plan Requirements: Offerors submitting proposals requiring a Subcontracting Plan in accordance with FAR 19.702 shall include an individual subcontracting plan as an attachment to their Business Price Volume. See FAR 52.219-9 with alternate II for further requirements. If an offeror has a comprehensive subcontracting plan, the offeror shall so state in their business/price volume and provide a copy of the signature page of the Comprehensive Subcontracting Plan and any supplements to the plan, the identification number thereof, and any pages identifying the subcontracting goals. Submitted plans must be approved by the PCO prior to contract award.

f. Model Contract and Section K: A Cost Plus Fixed Fee (CPFF) model contract containing the typical terms and conditions for awards resulting from this PRDA and the required certifications and representations (Section K) will be available at the FedBizOpps web page [www.eos.gov/spg/USAF/AFMC/AFFTC/PRDA-04-01-PKT](http://www.eos.gov/spg/USAF/AFMC/AFFTC/PRDA-04-01-PKT). If you propose other than a CPFF contract, appropriate sections of the contract may be different. If you propose an assistance instrument, i.e. a Technology Investment Agreement (TIA), the award document will consist of Articles and be written in accordance with the DoDGARS. All offerors submitting one or more proposals must submit a completed set of certifications and representations with each proposal. Offerors are instructed to submit them in their original business/price volume. Any exceptions taken to the terms and conditions in the model contract should also be addressed in the business/price volume.

## **SECTION D: BASIS FOR AWARD**

1. Proposals received in response to this PRDA will be evaluated and categorized as Category I, II, or III which are defined as follows: Category I proposals are well conceived, scientifically and technically sound proposals pertinent to program goals and objectives, and offered by a responsible contractor with the competent scientific and technical staff and supporting resources needed to ensure satisfactory program results. Proposals in Category I are recommended for acceptance and normally are displaced only by other Category I proposals. Category II proposals are scientifically or technically sound proposals requiring further development and are recommended for acceptance, but are at a lower priority than Category I. Category III proposals are not technically sound or do not meet agency needs.

2. The Government reserves the right to select for contract award any, all, part or none of each proposal received in response to this announcement. Multiple awards are possible. The selection of the sources for contract award shall be based upon an integrated best value assessment considering technical merit and price. A scientific and engineering evaluation will be conducted on all proposals received. The purpose of this evaluation is to determine the relative merit of the technical approach proposed in response to this announcement. This evaluation shall consider technical aspects and price as related to technical effort. The technical evaluation area will be ranked as first priority in the evaluation. The price area, while considered substantial, will be second in priority. Organization and clarity of information are critical to all of the evaluation criteria.

3. Sequence of Awards: In most BAAs/PRDAs, awards are usually made to Category I proposals prior to awards being made to any Category II proposals. Only proposals receiving a rating of Category I or II will be eligible for selection for award. If there are no Category I proposals, a Category II proposal may be selected for award. It may be the case that while your overall proposal may be ranked in Category II (or even Category III) a certain part of the proposal may be ranked Category I or II. In this case the flexibility of the BAA/PRDA process will allow the Government to make an award for that portion of your proposal that is of high interest to the Government. It may also be the case that another division of the laboratory or even another agency may be interested in your proposed approach (or a portion of the proposal) and provide funds to make an award for your effort. Once again, the flexibility of this process allows us to make awards in these instances. Category III proposals, with the exception of certain parts of the proposal (as describe above) essentially have no chance for award.

a. Technical/Management:

(2) The Technical/Management evaluation will be based on the following criteria:

(a) Criterion 1 - Understanding of the problem. Assessment of the offeror's understanding of the problem including an accurate statement of the scope of the effort, adequate assessment of the risks involved, realistic portrayal of current design capabilities, and a realistic vision of the design capabilities necessary for advanced electric propulsion thruster system designs.

(a) Criterion 2 - Sound technical approach. Assessment of the offeror's technical approach including an effective approach to supplement current capabilities, a logical process for design and fabrication of hardware, identification of risk reduction activities, assessment and mitigation of risks related to integrating proposed approach onto operational spacecraft, qualification of key personnel to perform proposed work, clear and well written Statement of Work (SOW), and relevance to the Integrated High Payoff Rocket Propulsion Technology (IHRPT) program goals and other stated requirements.

(b) Criterion 3 - Strong transition strategy. Assessment of the offeror's transition strategy including ability to build flight qualifiable spacecraft hardware and transition it to operational spacecraft systems, leveraging of current capabilities, perceived benefit to the offeror and Government, and efficacy of any proposed teaming arrangements.

(c) Criterion 4 - Sound project management approach. Assessment of the offeror's project management approach including identification of resources, commitment to program stability, use of strong engineering lead for technical coordination, a well documented schedule, and demonstrated relevant past/present performance. Relevant is defined as research that is considered to be of the type and similar in scope, magnitude and complexity when compared to the effort described in this announcement.

(2) Criteria 1 and 2 are of equal importance to each other and are the most important in the technical/management area. Criterion 3 is of less importance than criteria 1 and 2 but is of more importance than criterion 4. Criterion 4 is of less importance than criteria 1, 2, and 3.

b. Price:

(1) To be acceptable, an offeror's price must be fair, reasonable and affordable. This includes the reasonableness of the proposed price as compared to the proposed scope of work. It is anticipated that adequate price competition (APC) will be achieved between the offers received. Only that data deemed essential for determining a fair and reasonable contract price will be requested. If APC is not achieved, the offerors will be requested to submit cost or pricing data IAW FAR 15.403-4. The cost evaluation will include:

(a) **Realism** of costs for the work to be performed; clear understanding of the requirements, and consistency with the various elements of the proposal.

(b) **Reasonableness** of the proposed price to include completeness and as compared to the Independent Government Estimate (IGE) and the other submitted proposals.

(c) **Balance** of the prices proposed, especially considering the basic period as compared to the individual option periods.



(d) **Affordability** of the proposed price as compared to available program funding.

c. No further evaluation criteria will be used in assessing the proposals. The technical and price information will be evaluated at the same time.



## **SECTION E: OTHER INFORMATION TO OFFERORS:**

### **1. Notification of Non-Government Advisors:**

a. **Advisors to the Evaluation Team:** Offerors are advised that representatives from The California Institute of Technology (Jet Propulsion Laboratory), ERC, Inc., and Spiral Technologies, Inc. may assist the Government as advisors in performing technical evaluations of the proposals submitted under this announcement. These advisors will be authorized access to only those portions of the proposal data and discussions that are necessary to enable them to provide specific advice on specialized matters, or on particular problems. The non-Government advisors will not be allowed to determine strengths and weaknesses, or establish initial or final assessments of risks, or actually rate or rank offerors' proposals. They will also have access to offeror proprietary, confidential or privileged commercial or financial data.

b. **Videographers:** Offerors are advised that personnel from Rohmann Services, Inc. will be operating the video recording equipment during the oral presentations and Question and Answer sessions.

c. **Post-Award Advisors:** Offerors are also advised that representatives from Spiral Technologies, Inc. may review technical and cost information. Representatives from The Centech Group, Inc. and Spiral Technologies, Inc. may provide administrative support.

d. **Any objection to the disclosure of information to these non-Government advisors should be provided in writing BEFORE the date set for receipt of proposals and shall include a detailed statement for the basis of the objection. Include in your business/price proposal specific authorizations for release of information to the above listed contractors.**

2. Based upon market research, the Government is not using the policies contained in FAR Part 12, Acquisition of Commercial Items, in its solicitation for the described supplies or services. However, interested persons may identify to the contracting officer their interest and capability to satisfy the Government's requirement with a commercial item within 15 days of this notice. Note: Offerors are advised that only contracting officers are legally authorized to commit the Government. All responsible sources may submit a proposal, which shall be considered by that agency.

3. **Debriefings:** For debriefing instructions see FAR Subpart 15.5 for pre-award and post-award debriefs.

## **POSTSCRIPT**

1. If after reading this announcement, you have questions or concerns, please contact the appropriate person immediately.
2. Direct questions regarding the technical portion of the PRDA, and the IHPRPT program including the ARPP process, to the Technical POC.
3. Direct all other questions regarding the PRDA announcement to the Contracting POC.

## ATTACHMENT 1

### CONTRACTOR STATEMENT OF WORK (SOW) GUIDELINES

1. It is the Government's intent to incorporate the contractor's SOW, as written, into the applicable resulting contract. This will occur only if the contractor's SOW accurately describes the work to be performed, is enforceable, and is void of inconsistencies. If, in the Government's opinion, the contractor's SOW does not reflect these requirements, the Government will prepare a SOW using information available in the offeror's proposal; this process may delay award. The SOW shall be a separate and distinct document. The proposed SOW must contain a summary description of the technical methodology as well as the task description, but not in so much detail as to make the contract inflexible or create a **classified or proprietary SOW**.

2. The following format is **mandatory** for all proposed SOWs. In addition to a hard copy of the SOW, include an electronic version on a CD-ROM using Microsoft Word 6.0 or above. The offeror shall start the SOW at Paragraph 1.0. and include the following sections:

a. 1.0 Objective: This section is intended to give a brief overview of the project. It should describe why the effort is being pursued and what is to be accomplished. It should also describe which IHPRT objectives/goals are being pursued.

b. 2.0 Scope: This section includes a statement of what the SOW covers. Included should be the technology area to be investigated, specific quantifiable goals, major milestones, deliverables and/or residuals for the effort.

c. 3.0 Applicable Documents/Background: The offeror shall identify appropriate specifications, standards and other documents that are applicable to the effort to be performed. This section also includes any information, explanations, or constraints that are necessary in order to understand the requirement. It may include relationships to previous, current and future operations.

d. 4.0 Task/Technical Requirements: The detailed description of tasks, which represent the work to be performed under the contract, are to be considered binding. Thus, it should be developed in an orderly progression and in enough detail to establish the feasibility of accomplishing the overall program goals. The work effort should be segregated into major tasks and identified in separately numbered paragraphs according to a numeric decimal system. Each numbered major task should delineate by subtask the work to be performed. The SOW must contain every major task to be accomplished. **The tasks must be definite, realistic, and clearly stated.**

(1) The offeror shall identify the risks and risk levels associated with each proposed task, along with the planned mitigation strategy of the identified risks. This may be attached as an appendix without impact on the page limitation.

(2) The offer shall use "shall" whenever the work statement expresses a provision, which is binding. Use "should" or "may" whenever it is necessary to express a declaration of

purpose. Use "will" in cases where no contractor requirement is involved: i.e. power will be supplied by DoD/NASA. Specifically identify tasking which the contractor shall perform verses government involvement.

(3) Identify all planned presentations and meetings in your schedule including but not limited to preliminary and critical design reviews, program reviews, regular technical interchange meetings, etc, and include the following statement in your SOW: "Conduct presentations/meetings at times and places specified in the Program schedule."

(4) The offeror **shall reference/acknowledge in the SOW** all specified data items that were included in Section A of this announcement, and/or any others not identified but considered necessary by the contractor. **Each data item should be identified in parentheses at the end of the paragraph(s) that it refers to.** Do not include a paragraph that summarizes the data items.

## ATTACHMENT 2

### ORAL PRESENTATION TOPICS

1. During the oral presentation, the offeror's key project personnel should expound on the following topics. This is intended to be a suggested oral presentation outline. Presenters should use their own discretion to add, omit, and combine topics as applicable to their specific project. It is the responsibility of the offeror to insure that all aspects of the technical/management selection criteria (Section D) are adequately addressed in their presentation.

a. Introduction (15 min)

(1) Key personnel

(2) Corporate commitment to IHPRPT

b. Oral Presentation (180 min)

(1) Understanding of the Problem

(a) Scope of the effort

(b) Offeror's current design capabilities

(c) Vision of the design capabilities necessary for advanced electric propulsion thruster system designs

(d) Assessment of risks involved

(2) Technical Approach

(a) Qualification of key personnel to perform proposed effort

(b) Overview of Statement of Work to first subtask level

(c) Assessment and mitigation of risks related to integrating proposed approach onto operational spacecraft

(d) Risk reduction activities

(e) Relevance and traceability to IHPRPT goals and other stated requirements

(3) Transition Strategy

(a) Ability to build flight qualifiable spacecraft hardware and transition it to operational spacecraft systems

- (b) Current capability leveraging
- (c) Benefit of effort to the offeror and the Government
- (d) Any proposed teaming arrangements

(4) Project Management Approach

- (a) Resumes of the lead management (1), the lead technical (1), and up to two (2) other key personnel
- (b) Identification of other resources
- (c) Offeror's demonstrated relevant past/present performance
- (d) Program stability plan (management reserve, contractor proposed options, cost containment, decision gates, key personnel stability, etc...)
- (e) Schedule
- (f) Requirements for key subcontractors
- (g) Top level cost

*- Deleted "How risk will be identified and mitigated (Lessons learned)"*

2. **Other Oral Presentation Topics.** The team may also expound on any other topics that are considered by the offeror to be pertinent to a demonstration of the firm's knowledge, competence, and capability to perform so long as that information is presented within the specified time limit.

## ATTACHMENT 3

### GUIDELINES FOR INFORMATION OTHER THAN COST OR PRICING DATA

1. Offerors are requested to submit an abbreviated business/price volume containing information other than cost or pricing data as described in FAR 15.403-5. This information will be used to support price reasonableness and cost realism. Following is a description of the cost information required.

2. **Cost Summary by Cost Elements:** Provide a cost summary by major cost elements including labor categories by Contractor Fiscal Year (CFY) using the format shown below. Include a definition of the dates of the CFY. Ensure the totals for any cost elements, which require further breakdown, as specified below, agree with the totals reflected on this table. For cost realism purposes, identify in electronic spreadsheet labor rates by category and CFY as well as all other direct and indirect rates by CFY. **A separate cost summary by major cost elements must be provided for each proposed option.**

| COST ELEMENT                   | CFY 04 | CFY 05 | etc. | TOTAL |
|--------------------------------|--------|--------|------|-------|
| Direct Labor Hours & Dollars   |        |        |      |       |
| Engineering Hours              |        |        |      |       |
| Engineering Dollars            |        |        |      |       |
| Manufacturing Hours            |        |        |      |       |
| Manufacturing Dollars          |        |        |      |       |
| Etc.                           |        |        |      |       |
| Subtotal Direct Labor Hours    |        |        |      |       |
| Subtotal Direct Labor Dollars  |        |        |      |       |
| Overhead                       |        |        |      |       |
| Material                       |        |        |      |       |
| Subcontracts                   |        |        |      |       |
| Other Direct Costs             |        |        |      |       |
| Subtotal                       |        |        |      |       |
| G&A                            |        |        |      |       |
| Estimated Cost                 |        |        |      |       |
| Facility Capital Cost of Money |        |        |      |       |
| Fee                            |        |        |      |       |
| Total                          |        |        |      |       |

**Sample Cost Summary by Cost Elements**

3. **Subcontractors:** Provide the following two lists of subcontracts. Ensure the sum of the two lists agrees with the total reflected in the Cost Summary required in paragraph 2 above.

a. Submit a list of all subcontracts less than \$50K each. Include the total price and total hours for each subcontractor.

b. Submit a list of all subcontracts over \$50K, showing: (1) the name, (2) description of effort, (3) type of contract, (4) total price and total hours proposed by each, and (5) the portion of the subcontractor's price and hours included in the prime's proposal. If one subcontractor is 25% or more of the total proposed price by the prime, then the same documentation required of the prime shall also be required of the subcontractor.

4. **Materials:** Provide the following information.

- a. If the total cost of all proposed materials is less than 10% of the proposed contract cost, provide the number of vendors proposed and the cost per vendor.
- b. If the total cost of all proposed materials is between 10% and 20% of the proposed contract cost, provide the kinds, types and quantities proposed.
- c. If the total cost of all proposed materials is greater than 20% of the proposed contract cost, submit a complete Bill of Materials. Identify the kind, type, and detailed pricing of material (by contractor FY) and the basis of cost, e.g., engineering estimate (based on what historical program or other quantitative analysis), purchase order history, firm purchase order, vendor quotation, vendor ROM, catalog price, etc., including any escalation applied to historical data. Application of any applied decrement factor should be described including basis for factor (company historical factor or specific history with a specific vendor). Ensure the total dollar amount agrees with the total reflected in the Cost Summary required in paragraph 1 above.

5. **Cost of Government Furnished Facilities and Propellant:** Provide the following information.

- a. List the total cost of government support for each proposed government furnished facility by government fiscal year.
- b. List the total cost of each government furnished propellant by type and quantity for each government fiscal year.

6. Offerors shall submit electronically encoded cost information in support of their proposed price. Any cost information submitted must be consistent with the offeror's approved estimating system and must duplicate the logic and mathematical formulae reflected in the paper copy of the proposal. These formulas should be accessible, not locked, and able to be edited by the government. Electronic cost information should normally comply with the following format requirements:

- a. Data file should be submitted on a CD-ROM.
- b. Data files/diskettes should be accessible by an IBM compatible computer running Microsoft Word 6.0 or above.
- c. Data file should be .XLS file format (MS-Excel, Release 97 or later) compatible format.

7. **Changes to Business/Price Volumes:** Changes to previously submitted business/price volumes will include documentation indicating how a previously submitted volume is impacted or affected.



- a. If changes to the original business/price volume are relatively insignificant and involve only minor changes to elements such as labor rates, overhead and General and Administrative (G&A) rates, bill of material changes, travel costs, and other direct costs, then minor changes can be accomplished through the use of change pages or slip pages accompanied by new cost summaries.
- b. A fully revised business/price volume should rarely be necessary. However, if changes to the original business/price volume are encountered which require significant changes to the proposed technical approach and there is little or no correspondence between the original and revised proposal, a new business/price volume would be required.

## ATTACHMENT 4

### GUIDELINES FOR COST OR PRICING DATA

1. **Introduction:** Submission of cost or pricing data as defined at FAR 15.401 will be required for proposals submitted in response to this PRDA, if the Contracting Officer has not determined that Adequate Price Competition exists. If cost or pricing data is requested, it must be submitted in accordance with FAR Part 15, Table 15-2 as the business/price.

2. **Certificate of Current Cost or Pricing Data:** A Certificate of Current Cost or Pricing Data is required for all negotiated contracts expected to exceed \$550,000 (FAR 15.403-4), when cost or pricing data as defined by FAR 15.401 was required. The certificate, if required, should be submitted at the conclusion of negotiations or soon after.

3. **Cost Element Breakdown(s):** Supporting breakdowns for each cost element should be consistent with the offeror's cost accounting system, in accordance with the offeror's disclosed accounting practices. All direct costs (labor, material, travel, computer, etc.) as well as labor and overhead rates should be provided by contractor fiscal year. The cost element breakdown(s) should include the following.

a. **Person hours:** Labor hours should be presented by category of labor [by contractor FY] and task or phase, when appropriate and must agree with the labor mix schedule in the technical/management volume.

b. **Rates:** Labor, overhead and G&A rates, fringe benefits, etc., should be listed by category and by contractor FY. When under a Forward Pricing Rate Agreement, reference the date(s) the agreement(s) was (were) signed.

c. **Travel:** The number and duration of trips, destination, purpose of each trip including task or WBS reference, and number of personnel involved should be included. Identify airfare, application of per diem, lodging costs, allowances for local travel, and/or rental vehicles. When lodging and per diem costs are in accordance with the Joint Travel Regulations (JTR), cite the date of the JTR update used. If corporate agreements exist, reference the applicable agreement. Identify the source of airfare rates, including any anticipated seating class.

d. **Subcontracting:** Subcontractor's proposals must be similarly structured as the prime's. All subcontracted work must be properly identified as such with appropriate references to the technical effort to be accomplished. The prime contractor must ensure that the subcontractor adheres to the guidance set forth in FAR 15.403-5 and Table 15-2. To that end, prime's proposals must:

(1) Identify principal items/services to be subcontracted.

(2) Identify prospective subcontractors and the basis on which they were selected. If non-competitive, provide selected source justification.

(3) Identify the type of contractual or other arrangement contemplated for the subcontract and provide a rationale for same.

(4) Identify the basis for the subcontract costs (ex. - firm quote or engineering estimate, etc.)

(5) Identify the cost or pricing data submitted by the subcontractor.

(6) Provide a proposal analysis of the proposed subcontract in accordance with FAR 15.404-1. Provide an analysis concerning the reasonableness, completeness of each subcontractor's proposal. If the analysis is based on comparison with prior prices, identify the basis on which the prior prices were determined to be reasonable. Any cost analysis should include, but not be limited to, an analysis of labor, travel or other direct costs and proposed profit/fee rates. Application of any appropriate decrement factor should be described including basis for factor applied (company historical factor or specific history with subcontractor in question).

e. Other Direct Costs: This section should include all "other" costs (by contractor FY) such as computer costs (include bases and rates), consultants, inter-company and/or inter-business transfers not already included in the material section.

4. Cost of Government Furnished Facilities and Propellant: Provide the following information.

a. List the total cost of government support for each proposed government furnished facility by government fiscal year.

b. List the total cost of each government furnished propellant by type and quantity for each government fiscal year.

5. Submittals: Each submittal must contain a cost element breakdown of each major task set forth in the SOW (by contractor FY) and a summary level cost element breakdown.

6. Supporting Information: Information supporting the offeror's estimating process should include all judgmental factors applied and the mathematical or other methods used in the estimating process. This should include the current status (if applicable) of the disclosure statement, purchasing system, estimating system, and property management system.

7. Changes to Business/Price Volumes: Changes to previously submitted Business/Price Volumes will include documentation indicating how a previously submitted volume is impacted or affected.

a. If changes to the original business/price volume are relatively insignificant and involve only minor changes to elements such as labor rates, overhead and General and Administrative (G&A) rates, bill of material changes, travel costs, and other direct costs, the changes can be

accomplished through the use of change pages or slip pages accompanied by new cost summaries.

b. A fully revised business/price volume should rarely be necessary. However, if changes to the original business/price volume are encountered which require significant changes to the proposed technical approach and there is little or no correspondence between the original and revised proposal, a new business/price volume would be required.